

BEDHANA KARMA: AN AYURVEDIC PERSPECTIVE ON SURGICAL INCISIONS WITH EMPHASIS ON ABDOMINAL INCISIONS

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ABSTRACT

Bhedana karma is one of the eight fundamental surgical procedures (*astavidha shastra karma*) described by *acharya Sushrutha*. The concept of *bhedana* primarily refers to making a controlled incision to drain pus or to gain access to deeper structures, which can be correlated to modern surgical principle of incision. This article aims to critically analyze the classical *bhedana karma* with surgical incisions with special reference to abdominal incisions. *Acharya Sushrutha* has mentioned *shastras* used, indication, technique and qualities of ideal incision. These qualities resemble modern incision requirements of accessibility, extensibility and safety. The role of *bhedana karma* in different conditions like *vidhradhi*, *granthi*, *ashmari*, *udara* and some *kshudra rogas* explained by *acharya Sushrutha* are reviewed. Additionally, different types of abdominal incisions including midline, paramedian, Kochers, Pfannenstiel, grid iron and transverse incisions are been

discussed here. This article highlights that *acharya Sushrutha's* surgical principles scientifically relevant even in present day surgical practice.

KEYWORDS: *Bedhana karma*, Surgical incisions, *Sushrutha samhitha*, *Shalya tantra*.

INTRODUCTION

Surgery has been an integral part of ayurveda, Acharya Sushrutha being recognized as the pioneer of *shalya tantra*. The detailed surgical knowledge described in *Sushrutha samhitha* reflects detailed understanding of operative techniques. Among the *ashtavidha shastra karma* explained in *Sushrutha samhitha*, *bedhana karma* holds significant place and is primarily indicated in different surgical diseases. *Bedhana karma* refers to the act of making a controlled surgical opening to evacuate pus or pathological materials and to access deeper tissues. Acharya Sushrutha has clearly defined its indications, instruments, procedural guidelines and qualities of an ideal incision emphasizing the protection of vital structures such as *marma, sira, snayu, asthi and dhamani*.

In modern surgery, an incision is a planned surgical cut made to gain access to tissues or organs, especially in abdominal surgeries where adequate exposure, minimal tissue trauma and optimal wound healing are crucial. The principles governing modern incision closely resembles those laid down for *bhedana karma* in ayurveda.

MATERIALS AND METHODS

Bedhana karma refers to *bedhyam bhedaneeyam, vidhradyadi* which means making incision or opening a cavity to drain any pathological material.

Shastra and anushashastra used for bedhana karma^[1]

Acharya Sushrutha has mentioned *vruddhipatras, nakha shastra, Mudrika, Utpalapatras, ardhadhara shastras* for *bedhana*.

Among *anushashastras vamsha, spatika, kaacha, kuruvinda* and *nakha* are used for *bedhana karma*.

Procedure of bedhana karma^[2]

- On *prashasta thithi, karana, muhurta, nakshatra, laghu ahara* should be given to the patient and he should be positioned facing towards east direction.
- *Vaidhya* should be facing west direction and incision is done in *Anuloma gati* till *puya* is seen.
- While making the incision care should be taken to protect *marma, sira, snayu, sandhi, asthi* and *dhamani*.
- The extent of the incision should be 2or3 *angula* based on extension of suppuration.

Counter incision - In cases, where one incision is not enough to drain pus completely and when most prominent part is not the dependent part, here counter incision should be taken at most dependent part to facilitate drainage.

Multiple incision - According to the direction of the tract and wherever *utsanga* is seen, incision should be made in those places so that no *doshas/puya* is left behind.

Qualities of ideal incision

- *Aayata* – *deergah* (adequate length)
- *Vishala* – *visthirnah* (extensibility)
- *Suvibaktha* – *Suvyaktah sruṣṭu pruthakbhuta sakala avayavah* (well differentiated)
- *Nirashraya* - *Jihwa, danta, sandhi aadhi apraapya desham anashritham.*

Indications of *bedhana karma*^[3]

Bedhana karma is indicated in some of the *shalyaja vyadhis* such as *vidhradhi*, 3 types of *granthi*, *visarpa*, *vriddhi*, *vidharika*, *prameha pidaka*, *shopha*, *sthunaroga*, *avamanthaka*, *kumbhika*, *anushaayi*, *naadi*, *pushkaarika*, *alaji*, few *kshudra roga*, *taalu* and *danta pupputa*, *tundikeri*, *gilayu*, *ashmari*.

Bedhana karma in *shalyaja vyadhis*

Ashmari – For *asmari nirharana* the **incision** should be made on *vaama parshwa* one *yava* distance away from the *sevani*. The ***bedhana*** can be made on the *daksheena parshwa* based on convenience of the surgery.^[4]

Baddhagudhodhara - Here after *snehana* and *swedana*, ***bedhana*** should be made on the left side of the abdomen below the umbilicus 4 angula away from the *romaraji*. Then the intestine should be carefully examined and obstruction is removed.^[5]

Vidhradhi - When *vidhradi* attains *pakwa avasta* (stage of suppuration) ***bedhana*** is done in order to drain the collection and later *shodhana* is carried out.^[6]

In case of *sthana vidradhi*, ***bedhana*** is done using sharp instruments carefully protecting the *dugdhaharini* and *krishna chuchuka*.

Granthi - In *vataja granthi* after applying *sweda*, *upanaha* and *lepas*, when *granthi* attains *pakvata*, ***bedhana*** is done and *puya* removed then *prakshalana* is done.

In *pittaja granthi*, after attaining *pakvata bhedana* is done followed by *prakshalana* is done.^[7]

Medhaja vruddhi - After performing *swedana*, the swelling should be wrapped with cloth bands then ***bedhana*** is done using *vruddhipatra* carefully by protecting the *phala* and *Sevani*.^[8]

Removal of *pranashta shalya* - ***Bhedana*** is one among the *anavabaddha shalya uddharana panchadasha hethu*. Using *vruddhipatra* and other sharp instruments ***bedhana*** is done in case of removal of *anavabaddha shalya*.^[9]

Kshudra roga - In *andhaalaji*, *yavaprahkhy*, *panasi*, *kacchapi* and *pashanagardhabha*, *swedana* is done and then *lepa* of *manashila*, *haratala*, *kushta* and *devadaru* is applied. After attaining *paaka bedhana* is done and treated like that of *vrana*.

Incision – modern science

Surgical cut made into a tissue or organ is called an Incision. While doing incision, requirements like accessibility, extensibility and security should be achieved.

PRINCIPLES OF INCISION

- Incision should be long enough for a good exposure.
- Splitting of muscle is better than cutting, except rectus muscle.
- Avoid cutting nerves and vessels in the abdominal wall.
- Insert drainage tube through a separate incision.
- Transverse incision is better than vertical incision.

DIFFERENT TYPES OF ABDOMINAL INCISION^[10]

- Kocher's incision
- Midline incision
- Gridiron incision
- Battle's incision
- Lanz's incision
- Paramedian incision
- Transverse incision
- Rutherford Morison's incision
- Pfannenstiel incision

Midline incision - In the upper abdomen, this incision is quite suitable for operations on stomach, duodenum, pancreas. In this region linea alba is quite tough and the strength of the suture is quite adequate to prevent incisional hernia.

In lower abdomen, often used in gynaecological surgeries. Here the linea alba is relatively thinner and forms a weak scar, and may yield to produce incisional hernia.

Paramedian Incision - The incision is made lateral to the midline at a distance of about 1inch lateral to it. The skin, subcutaneous tissue and anterior rectus sheath are divided along the line of the incision.

Kocher's Incision - Incision starts in the midline just below the xiphoid process and runs downwards and laterally about 2cm below and parallel to the costal margin.

The skin, subcutaneous and all the muscles including the rectus are divided along the line of the incision.

Gridiron incision - This type of incision is commonly used for appendicectomy. The incision is an oblique one and perpendicular to the right spinousumbilical line through the McBurney's point of about 3-4 inches in length, whose one third will be above the spinousumbilical line and two-third below the same line.

Rutherford Morison's Incision - It is similar to the McBurney's gridiron incision.

This incision is mainly used for exposure of the ureter and can be performed on both sides of the abdomen. This is also used for exposure of the external iliac vessels

Lanz's incision - This is the cosmetic counterpart of McBurney's incision. This is mainly employed in performing appendicectomy.

Pfannenstiel incision - This is a transverse incision with slight curve downwards just above the pubis.

Transverse incisions have got a reputation that they heal quickly. This is due to the fact that there will be less muscular tension on the suture lines during coughing and rise of intra abdominal pressure.

Moreover these incisions lie on the Langer's lines of the skin, so has greater cosmetic value.

Comparative similarities between *bedhana karma* and modern surgical incision.

- 1) Purpose of incision - Both *bedhana* and incision aim to provide therapeutic access and promote healing such as evacuation of abscess, remove diseased tissue or gain access to organs for operative procedures.
- 2) Qualities of ideal incision - Focus on optimal exposure with minimal trauma. *Ayata*, *vishala*, *suvibaktha* and *nirashraya* are qualities of *bedhana karma* as explained by Acharya Sushrutha which are similar to the principles of surgical incision such as adequate exposure, extensibility.
- 3) Direction and site of incision - Anatomical consideration like site of incision and surgical exposure governs incision placement.
- 4) Counter incision - Multiple incision or dependent drainage is done to ensure complete drainage and prevent recurrence.
- 5) Instruments used - *shastras* used for *bedhana karma* are also similar to the modern surgical instruments used for incision.
- 6) Post-operative care - Acharya Sushrutha emphasizes *shodhana* and *ropana* after *bedhana karma* for wound healing similar to wound care after incision.

DISCUSSION

Bedhana Karma, as described by Acharya Sushrutha, represents a highly evolved surgical concept within Ayurveda. The similarities indicate that the foundational principles of surgery remain unchanged despite advances in technology. The alignment of Ayurvedic incision principles with modern concepts such as Langer's lines further emphasizes better wound healing and cosmetic outcomes.

Thus, the comparative evaluation reveals that Ayurvedic surgical principles described under *Bhedana Karma* are scientifically logical and continue to hold relevance in contemporary surgical practice even in present era.

CONCLUSION

The detailed guidelines regarding indications, instruments, incision techniques, and post-operative care reflect a systematic and scientific approach to surgery. The striking similarities between the principles of *Bedhana Karma* and modern surgical incisions highlight the timeless relevance of Acharya Sushrutha's contributions.

The correlation between Ayurvedic and modern surgical concepts, particularly in abdominal incisions, proves that ancient surgical wisdom was based on sound anatomical and physiological knowledge. Integrating these classical principles with modern surgical practice can enhance surgical precision, safety, and wound healing outcomes. Therefore, *Bedhana Karma* not only represents a historical surgical concept but also serves as a valuable foundation for contemporary and integrative surgical approaches.

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